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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,904	02/28/2002	Jon Gelsey	042390.P13786	4050

7590 04/14/2004

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EXAMINER	
ALEJANDRO, RAYMOND	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 04/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/086,904	GELSEY, JON	
	Examiner	Art Unit	
	Raymond Alejandro	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-60* is/are pending in the application.

4a) Of the above claim(s) *31-33 and 44-54* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *30,34-43 and 55-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/09/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office communication is in reply to the amendment filed 02/09/04. The applicant has overcome the objection and the 35 USC 102 rejection. Refer to the abovementioned amendment for specific details on applicant's rebuttal arguments. However, certain newly submitted claims (as all original claims 1-14 and 24-29 have been cancelled) are finally rejected over art as seen below and for the reasons that follow:

Election/Restrictions

1. Newly submitted claims 31-33 and 44-54 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: during prosecution applicants elected to have examined the claims of Group I and particularly Species 2 (now cancelled claims 2-3, 10-14 and 24-29) in response to a restriction requirement (refer to the papers dated 11/10/03 and 10/24/03). Accordingly, the examiner has currently identified and grouped claims 30, 34-43 and 55-60 as being, somehow, directed to substantially the same subject matter of originally elected claims 2-3, 10-14 and 24-29. Therefore, the remaining claims (claims 31-33 and 44-54) are deemed to be directed to mutually exclusive species claiming separate and/or distinct inventions, embodiments and/or characteristics.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 31-33 and 44-54 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

2. This application contains claims 31-33 and 44-54 drawn to an invention nonelected with traverse in Paper No. 11/10/03. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 02/09/04 was considered by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 30, 34-43 and 55-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Long et al 5702491 in view of Heung 6267229.

The present application is directed to an apparatus wherein the disclosed inventive concept comprises the specific hydrogen generators coupled to a fuel cell.

With respect to claims 30, 34-37, 56, 58-60:

Long et al teach a portable hydrogen generator (TITLE/COL 1, lines 8-10/COL 12, lines 24-26) which utilizes both exothermic and endothermic reactions therein (COL 8, lines 1-17). Long et al disclose that hydrogen generator 10 includes a thermally isolated container 12 (COL 3, lines 62-67). It is disclosed that the heat generated by exothermic reaction of the $LiAlH_4$ is used to generate additional hydrogen by the endothermic thermal decomposition (COL 8, lines 1-17/COL 4, lines 2-9). Long et al teach that by providing a thermally isolated environment for the hydrogen generator, and by controlling the supply of water for hydrolysis and the temperature, the generation of hydrogen is maintained stable and controllable through balancing exothermic and endothermic reactions of Table III (COL 8, lines 8-13). It is also disclosed that by utilizing both exothermic and endothermic reactions in hydrogen generator 10, the typical problems associated with volumetric expansions are avoided (COL 8, lines 16-35). *Thus, the disclosed hydrogen generator itself is capable of being simultaneously used as both the exothermic hydrogen generator and the endothermic hydrogen generator*.

Regarding claim 34, 55-58:

It is also taught that hydrogen generated in the hydrogen generator is supplied for used to a fuel cell (COL 4, lines 54-60). Long et al teach fuel cells (COL 4, lines 54-60/ COL 5, lines 54-56). *It is thus noted that the thermal characteristics of the fuel cell are inherent to the same fuel cell application therein.*

Regarding claims 38-39 and 42:

Long et al disclose that the primary candidates for use with the hydrogen generator as the primary chemical hydride includes $NaBH_4$ (COL 5, lines 57-63). It is disclosed that the ternary hydrides can be in liquid state (COL 5, line 60-61). TABLE II shows excess water reaction (TABLE II). *Thus, it does encompass the formation of aqueous solutions of chemical hydride materials.*

On the matter of claims 40-42:

Long et al also makes known that metal hydrides can be used as the chemical hydride (COL 3, lines 8-16/ COL 3, line 67 to COL 4, line 9/COL 5, lines 49-56/ TABLE I).

With reference to claim 43:

Long et al further disclose that the generation of hydrogen is maintained stable and controllable through balancing exothermic and endothermic reactions (COL 8, lines 1-18).

Long et al disclose an exothermic and endothermic hydrogen generating apparatus according to the aforementioned. However, Long et al do not disclose the specific compartments and the device coupled to the fuel cell to receive the power.

With respect to claims 30, 34-37, 56, 58-60:

Heung discloses a device that stores and discharges hydrogen comprising dividers partitioning a container into separate chambers to hold the hydrogen storage medium in separate cells (ABSTRACT/ COL 2, lines 5-20).

With reference to claims 34 and 57-58:

Heung also discloses powering vehicles, machinery or appliances with hydrogen powered fuel cells (COL 1, lines 18-23). *Thus, it encompasses electronic devices coupled to the fuel cell to receive the electrical power.*

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the specific compartments of Heung in the hydrogen generating apparatus of Long et al because Heung teaches that divided chambers (the specific compartments) allows to hold hydrogen storage medium in separate cells so as to improve heat transfer and preventing the storage medium from migrating into a different generating apparatus area. This helps to evenly distribute the storage medium as well as to provide a modular design so that the total hydrogen capacity is flexible. *It is also noted that both references are relevant to each other because they address the same problem of providing a suitable storage and/or generation space in hydrogen storage/generating apparatus. Moreover, it has been held that making a device/feature either portable, integral and/or separable is obvious. Succinctly stated, fact that a claimed device/apparatus is made portable, separable, integral or adjustable is not sufficient by itself to patentably distinguish over an otherwise old device unless there are new or unexpected results as it is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant. In re Larson 144 USPQ 347, 349. In re Dulberg 129 USPQ 348, 349. In re Stevens 101 USPQ 284. In re Lindberg 93 USPQ 23.*

With respect to the device coupled to the fuel cell to receive the power, it would have been obvious to one skilled in the art at the time the invention was made to couple a device to receive power from the fuel cell of Heung in the fuel cell of Long et al because Heung discloses that fuel cells using generated hydrogen are employed to power machinery, appliances and vehicles. Thus, the electrochemical energy conversion of the fuel cell is useful to energize energy powered devices.

Response to Arguments

7. Applicant's arguments, see the amendments filed 02/09/04 for specific details, with respect to the rejection of newly submitted claims (*currently pending claims*) 30, 34-43 and 55-60 under the 35 USC 102 statute and as applicable to cancelled claims 2-3, 10-14 and 24-29 (*also refer to the Election/Restriction section above*) have been fully considered and are persuasive. Therefore, the rejection has been overcome. However, upon further consideration, a new ground(s) of rejection is made as seen above. Accordingly, applicant's arguments with respect to newly submitted claims 30, 34-43 and 55-60 have been considered but are moot in view of the new grounds of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro
Examiner
Art Unit 1745